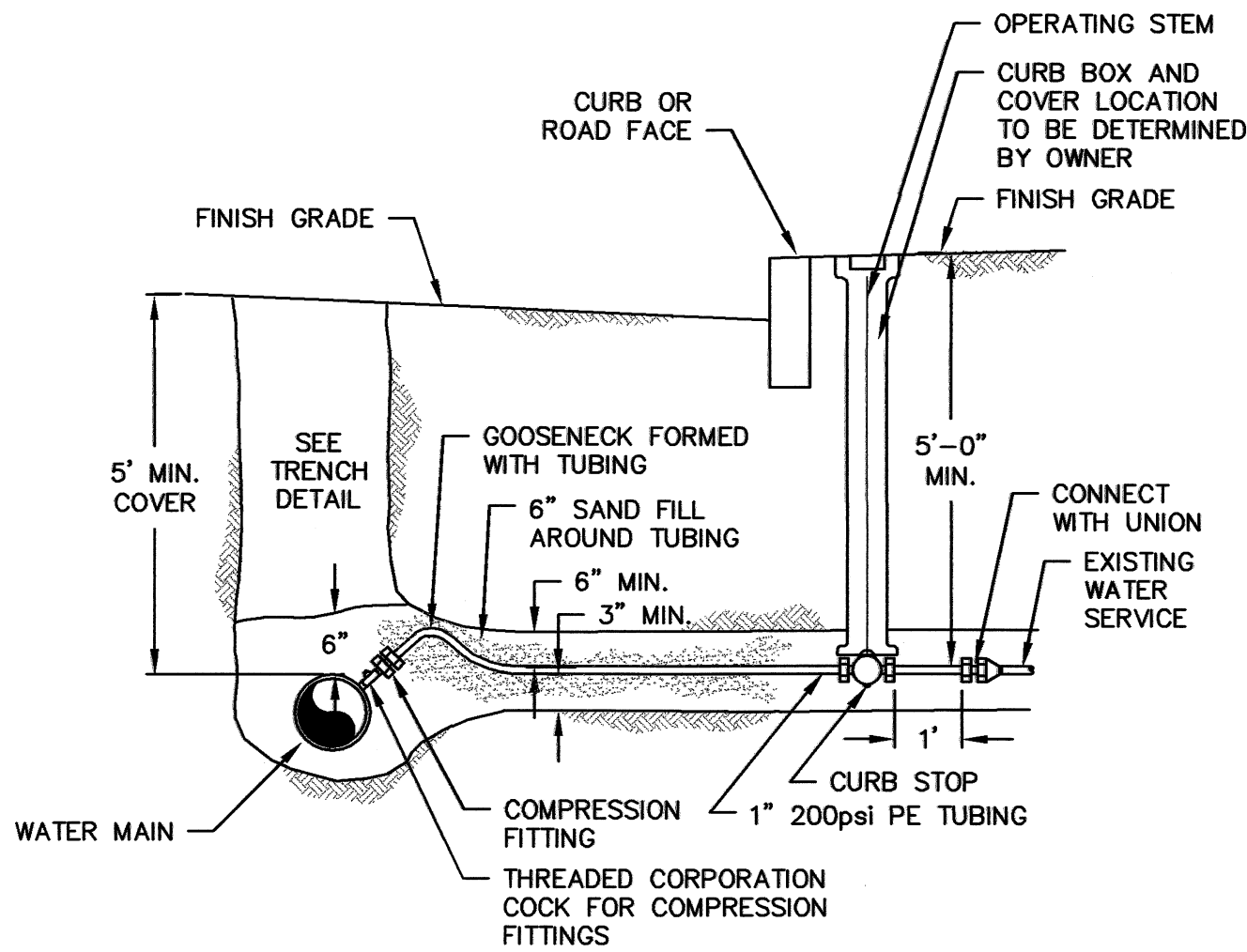
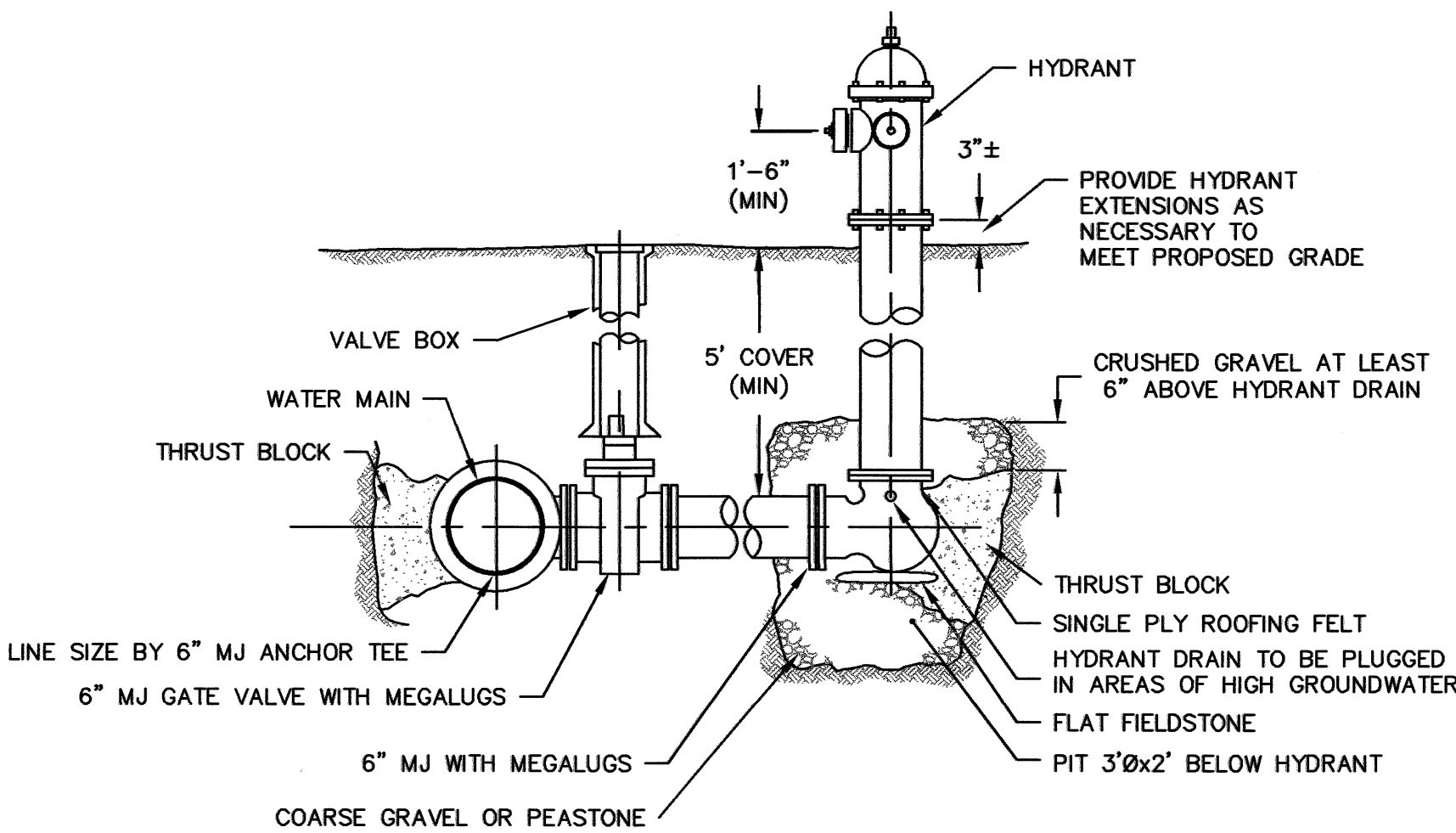


THRUST BLOCK DETAILS
NOT TO SCALE



TYPICAL SERVICE CONNECTION DETAIL
NOT TO SCALE

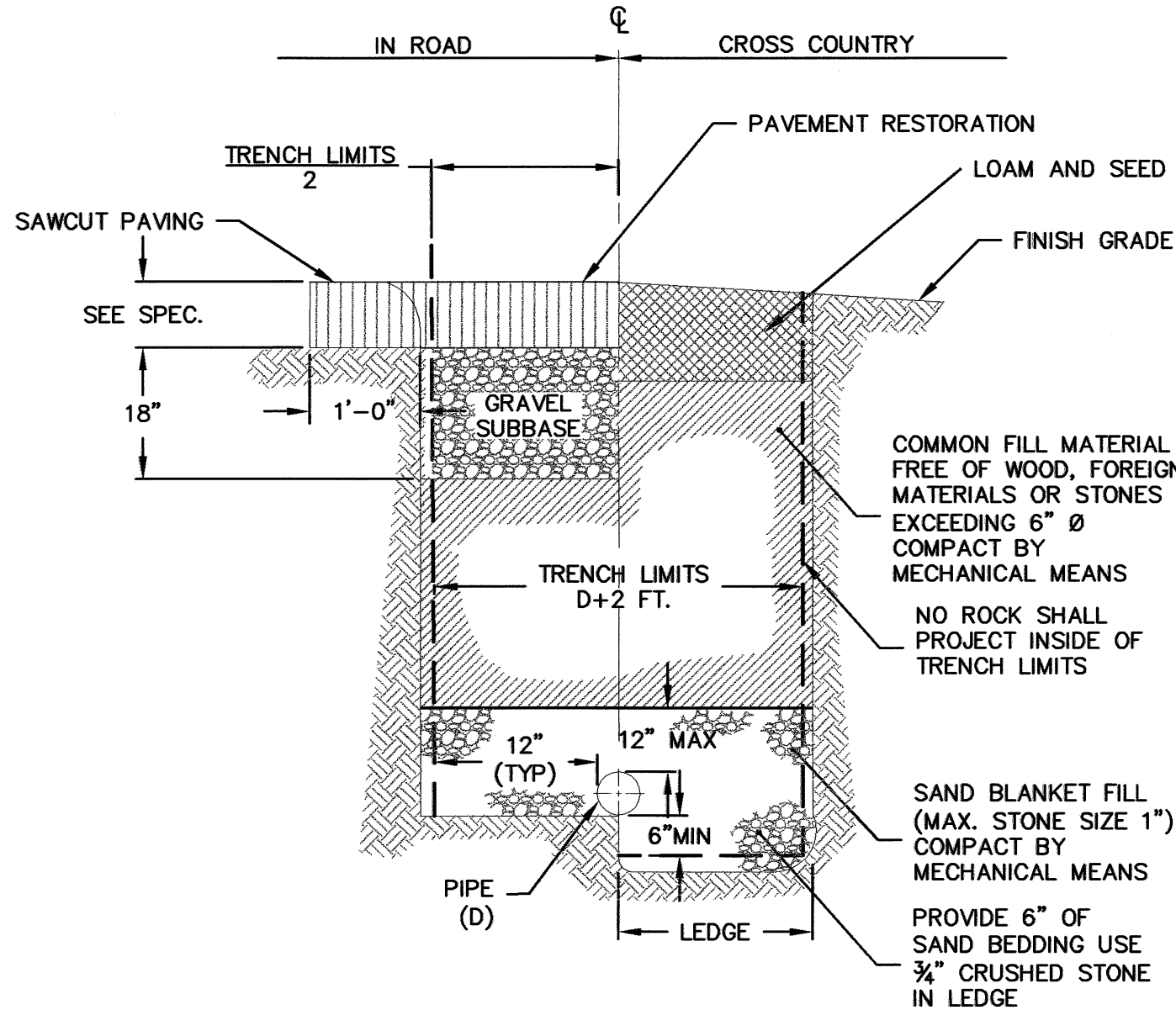


TYPICAL HYDRANT DETAIL
NOT TO SCALE

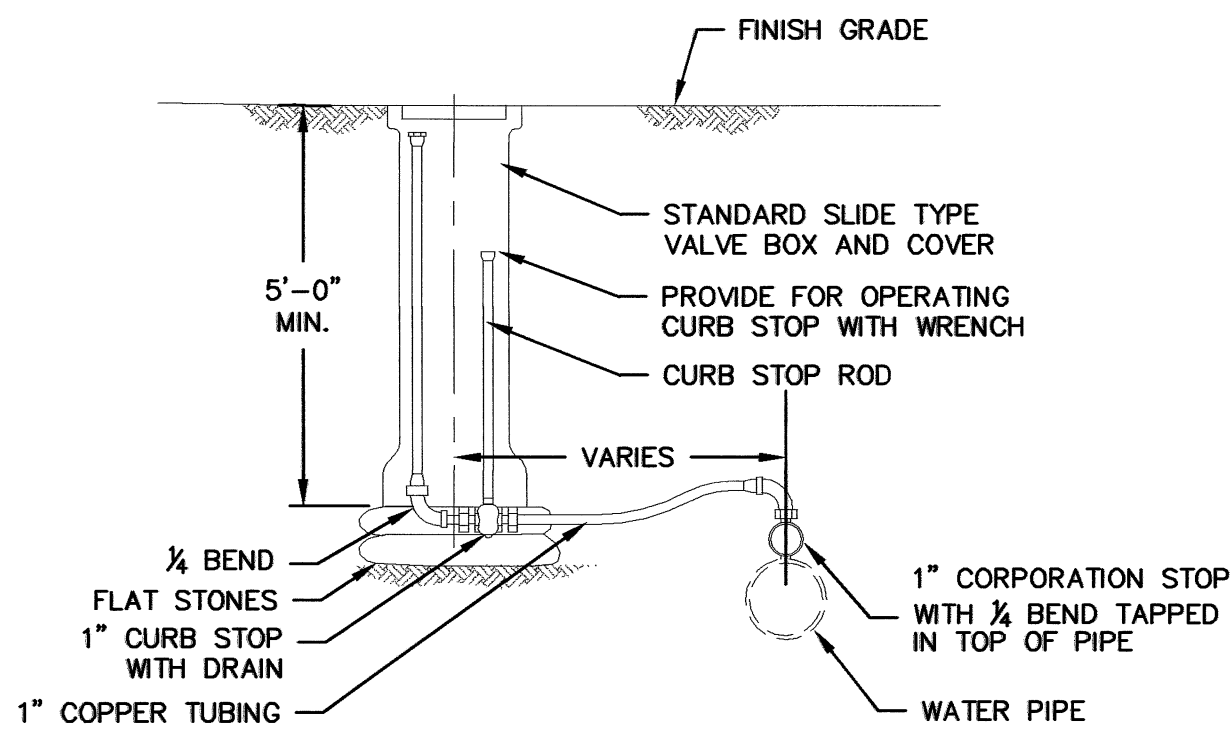
		THRUST BLOCK SCHEDULE SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL												
REACTION TYPE		PIPE SIZE												
		4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	
TEST PRESSURE = 100 PSIG	(A)	0.89	2.19	3.92	5.57	8.62	10.91	15.41	18.02	24.06	34.64	53.83	77.39	
	(B)	0.65	1.55	2.76	4.19	6.09	8.37	10.89	13.87	17.01	24.49	38.06	54.72	
	(C)	0.48	1.19	2.12	3.01	4.66	5.91	8.34	9.71	13.02	18.75	29.13	41.88	
	(D)	0.25	0.60	1.08	1.54	2.37	3.01	4.25	4.97	6.64	9.56	14.85	21.35	
	(E)	0.13	0.30	0.54	0.77	1.19	1.52	2.12	2.51	3.33	4.79	7.45	10.71	
OTHER TEST PRESSURES FOR THE ABOVE REACTIONS		TEST PRESSURE TO BE 200 PSI MIN. AT LOW END OF THE TEST SECTION. SQUARE FEET OF CONCRETE THRUST BLOCKING FOR OTHER TEST PRESSURES IS DIRECTLY PROPORTIONAL TO THE ABOVE TABLE. FOR INSTANCE, AT 200 PSI TEST PRESSURE FOR ABOVE NUMBERS DOUBLE.												

NOTES:

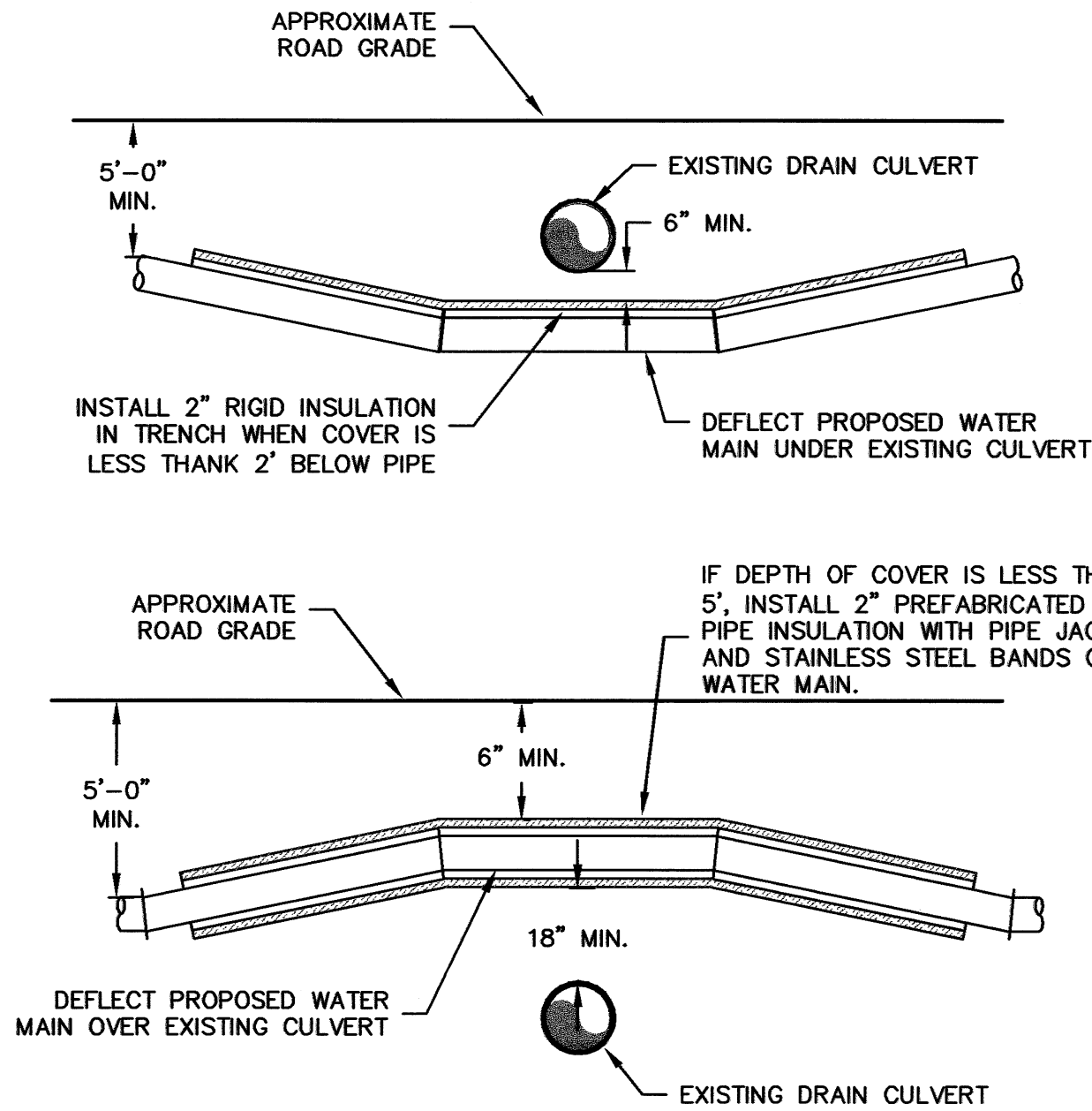
- POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
- ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
- PLACE CONCRETE PATIO BLOCKS IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK.
- REQUIREMENTS OF THE ABOVE TABLE PRESUME MINIMUM SOIL BEARING OF 1 TON PER SQUARE FOOT, AND MAY BE VARIED BY THE ENGINEER TO MEET OTHER CONDITIONS ENCOUNTERED.
- MEGALUG RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINTS. THESE GLANDS DO NOT REDUCE THE REQUIREMENTS FOR THRUST RESTRAINT.
- ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE OR BUILDING PAPER PRIOR TO INSTALLATION OF CONCRETE RESTRAINT.
- THREADED ROD SHALL BE ANSI A242 FYSO PIPE RESTRAINT NUTS TO MATCH AWWA C111. THREADED RODS AND NUTS TO BE FIELD COATED WITH BITUMINOUS PAINT.
- THRUST RESTRAINT IS REQUIRED FOR ALL TEES, BENDS, REDUCERS, CAPS, PLUGS, OR CROSSES.
- INSTALL LIFT HOOKS INTO THRUST BLOCKS AT END CAPS AND PLUGS.



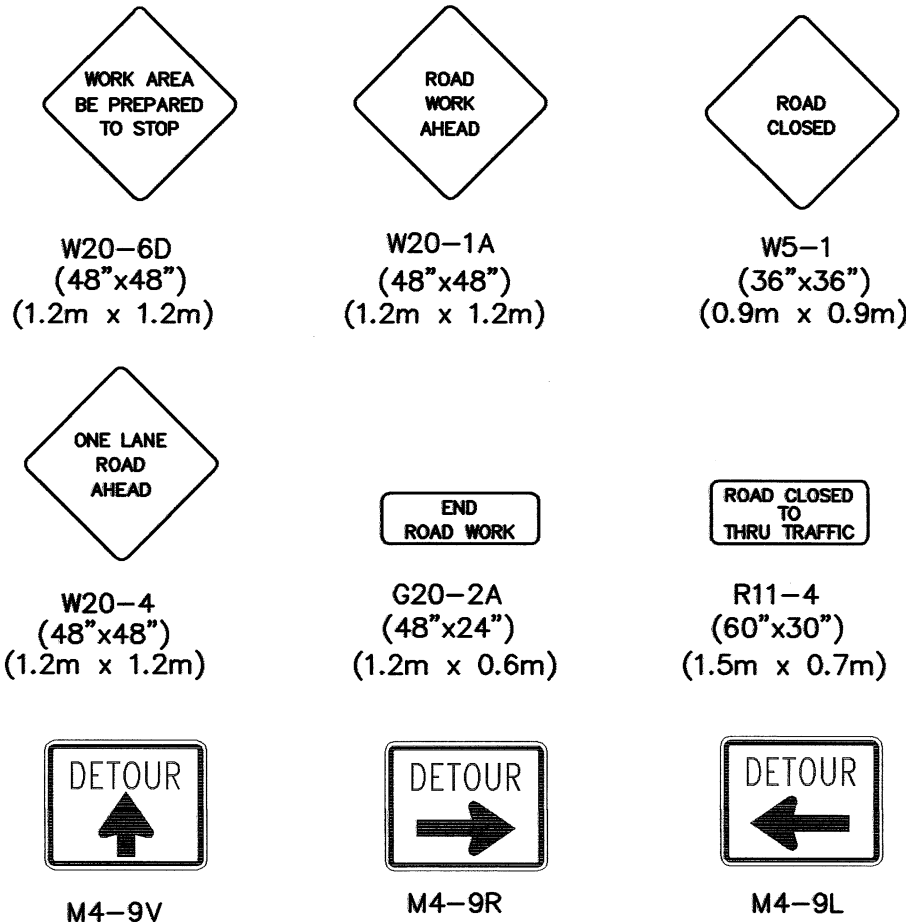
TYPICAL TRENCH DETAIL
NOT TO SCALE



**TYPICAL INSTALLATION - TRAVEL WAY
FOR AIR VENT OR CHLORINATION INJECTION**
NOT TO SCALE



TYPICAL DRAIN CROSSING DETAIL
NOT TO SCALE



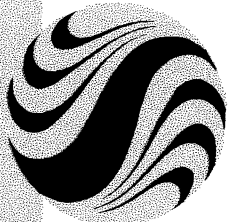
NOTES:

- SIGNS ARE TO BE MOUNTED ON 4"x4" P.T. WOOD POSTS AND ARE TO BE INSTALLED PRIOR TO START OF CONSTRUCTION.
- FINAL SIGN LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

TRAFFIC SIGN DETAILS
NOT TO SCALE

CONSTRUCTION NOTES

- THE CONTRACTOR SHALL NOTIFY "DIG SAFE" 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO BEGINNING THE WORK.
- THE EXISTING UTILITIES AND ALL OTHER STRUCTURES SHOWN ON THESE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE AND MAY NOT BE IN THE EXACT LOCATION SHOWN OR MAY NOT BE SHOWN AT ALL. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR THE COMPLETE FIELD INVESTIGATION, PERSONALLY, OF ALL EXISTING UTILITIES TO HIS COMPLETE SATISFACTION PRIOR TO SUBMITTING A FORMAL BID.
- NEW WATER MAINS SHALL WHEREVER POSSIBLE BE LAID OVER EXISTING SEWERS AND SEWER SERVICES, AND UNDER ANY EXISTING DRAINS, GAS MAINS, TELEPHONE CABLES, ELECTRIC CABLES, OR OTHER WATER MAINS AS SHOWN ON THE PLANS UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
- NEW WATER MAINS SHALL BE INSTALLED AT A MINIMUM DEPTH OF 5'-0" FROM FINISH GRADE TO TOP OF PIPE. WHERE NECESSARY NEW WATER LINES WILL BE INSTALLED AT A GREATER DEPTH TO CLEAR OBSTACLES AT NO ADDITIONAL COST. MINIMUM CLEARANCES OF UTILITIES AS SHOWN ON THE DRAWINGS MUST BE MAINTAINED. THE CONTRACTOR MUST OBTAIN APPROVAL FROM THE ENGINEER TO INSTALL ANY WATER LINES WITH LESS THAN 5'-0" DEPTH TO COVER. ANY WATER LINES INSTALLED WITH LESS THAN THE REQUIRED MINIMUM DEPTH OF COVER MUST BE INSULATED TO THE EXTENT INDICATED ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL EXCAVATE SUFFICIENTLY AHEAD OF HIS PIPE INSTALLATION SO AS TO DETERMINE WHETHER TO RAISE OR LOWER THE PROPOSED WATER MAIN SUCH THAT IT WILL CLEAR EXISTING UTILITIES.
- MEGALUGS SHALL BE PROVIDED FOR MECHANICAL JOINTS ON BENDS, TEES, PLUGS, CAPS, VALVES AND HYDRANTS WHERE SHOWN ON THE DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE UTILITY COMPANY TO SECURE UTILITY POLES IN AREAS WHERE NEW WATER MAIN IS TO BE INSTALLED CLOSE TO POLES.
- ALL FENCES, MAIL BOXES, SIGNS, WALKS, CURBS, ETC. SHALL BE REMOVED AND REPLACED AS NECESSARY TO COMPLETE THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DISTURBING STONE WALLS AND TREES DURING CONSTRUCTION. THE COST OF ALL SUCH WORK SHALL BE INCLUDED UNDER WATER MAIN ITEMS.
- THE CONTRACTOR SHALL INSTALL NEW WATER SERVICES TO PROPERTY LINE AND RECONNECT TO EXISTING SERVICE. LOCATION TO BE AS DIRECTED BY ENGINEER.
- THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES WHICH HOLD WATER IN THE SYSTEM. THE WATER DISTRICT WILL, UPON 24 HOURS NOTICE FROM THE CONTRACTOR, OPEN AND/OR CLOSE ANY VALVES REQUIRED FOR DRAINING OR ADMITTING WATER TO VARIOUS SECTIONS OF THE MAINS.
- ALL DISTURBED AREAS BEYOND PAYMENT LIMITS SHALL BE RESTORED AT NO ADDITIONAL COST.
- ANY WATER THAT IS PUMPED AND DISCHARGED FROM THE TRENCH AND/OR EXCAVATION AS PART OF THE CONTRACTOR'S WATER HANDLING SHALL BE FILTERED BY AN APPROVED METHOD PRIOR TO ITS DISCHARGE INTO A RECEIVING WATER OR DRAINAGE SYSTEM.
- THE PUMPED WATER SHALL BE FILTERED THROUGH BALED HAY, A VEGETATIVE FILTER STRIP OR A VEGETATED CHANNEL TO TRAP SEDIMENT OCCURRING AS A RESULT OF THE CONSTRUCTION OPERATIONS. THE VEGETATED CHANNEL SHALL BE CONSTRUCTED SUCH THAT DISCHARGE FLOW RATE SHALL NOT EXCEED A VELOCITY OF MORE THAN 1 FPS. THE SEDIMENT SHALL BE CLEARED FROM THE CHANNEL PERIODICALLY.



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Consultants

Legend

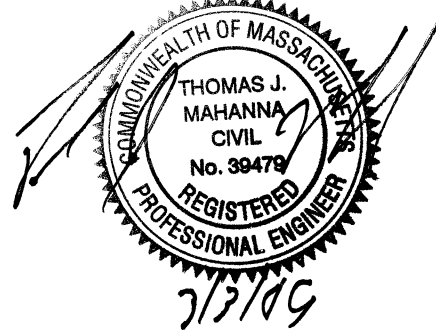
Notes

Revision By Appd. YY.MM.DD

Issued By Appd. YY.MM.DD

File Name: 11881c-501-502.dwg DP TJM RLJ 09.02.01
Dwn. Chkd. Dsgn. YY.MM.DD

Permit-Seal



Client/Project

ACTON WATER DISTRICT

WATER MAIN IMPROVEMENTS

Acton, Massachusetts

Title

WATER SYSTEM DETAILS

Project No. 19511881 Scale AS NOTED

Drawing No. Sheet Revision

C-501

6 of 7

**CONSERVATION COMMISSION
REVIEW
NOT FOR CONSTRUCTION**